import javax.persistence.\*;

public class Main {

public static void main(String[] args) {

EntityManagerFactory emf = Persistence.createEntityManagerFactory("objectdb:db.odb");

EntityManager em = emf.createEntityManager();

em.getTransaction().begin();

// User and Customer

User user = new User("user123", "password", "Active");

Customer customer = new Customer("John Doe", "123 Main St", "john@example.com", user);

// Shipping Info

ShippingInfo shippingInfo = new ShippingInfo("Express", 50);

// Order

Orders order = new Orders(customer, shippingInfo);

// Persist data

em.persist(user);

em.persist(customer);

em.persist(shippingInfo);

em.persist(order);

em.getTransaction().commit();

em.close();

emf.close();

}

}

import javax.persistence.Entity;

import javax.persistence.Id;

@Entity

public class User {

@Id

private String userId; // Primary key

private String password;

private String loginStatus;

// Default constructor

public User() {}

// Parameterized constructor

public User(String userId, String password, String loginStatus) {

this.userId = userId;

this.password = password;

this.loginStatus = loginStatus;

}

// Getters and Setters

public String getUserId() {

return userId;

}

public void setUserId(String userId) {

this.userId = userId;

}

public String getPassword() {

return password;

}

public void setPassword(String password) {

this.password = password;

}

public String getLoginStatus() {

return loginStatus;

}

public void setLoginStatus(String loginStatus) {

this.loginStatus = loginStatus;

}

// Method to verify login (Business logic)

public boolean verifyLogin(String inputPassword) {

return this.password.equals(inputPassword);

}

@Override

public String toString() {

return "User [userId=" + userId + ", password=" + password + ", loginStatus=" + loginStatus + "]";

}

}

import javax.persistence.Entity;

import javax.persistence.Id;

@Entity

public class Customer {

@Id

private String customerName; // Primary key

private String address;

private String email;

private String creditCardInfo;

private String shippingInfo;

// Default Constructor

public Customer() {}

// Parameterized Constructor

public Customer(String customerName, String address, String email, String creditCardInfo, String shippingInfo) {

this.customerName = customerName;

this.address = address;

this.email = email;

this.creditCardInfo = creditCardInfo;

this.shippingInfo = shippingInfo;

}

// Getters and Setters

public String getCustomerName() {

return customerName;

}

public void setCustomerName(String customerName) {

this.customerName = customerName;

}

public String getAddress() {

return address;

}

public void setAddress(String address) {

this.address = address;

}

public String getEmail() {

return email;

}

public void setEmail(String email) {

this.email = email;

}

public String getCreditCardInfo() {

return creditCardInfo;

}

public void setCreditCardInfo(String creditCardInfo) {

this.creditCardInfo = creditCardInfo;

}

public String getShippingInfo() {

return shippingInfo;

}

public void setShippingInfo(String shippingInfo) {

this.shippingInfo = shippingInfo;

}

// Methods representing business logic

public void register() {

System.out.println("Customer " + customerName + " registered successfully.");

}

public void login() {

System.out.println("Customer " + customerName + " logged in.");

}

public void updateProfile(String newAddress, String newEmail) {

this.address = newAddress;

this.email = newEmail;

System.out.println("Profile updated for customer: " + customerName);

}

@Override

public String toString() {

return "Customer [customerName=" + customerName + ", address=" + address +

", email=" + email + ", creditCardInfo=" + creditCardInfo +

", shippingInfo=" + shippingInfo + "]";

}

}

import javax.persistence.Entity;

import javax.persistence.Id;

@Entity

public class Order {

@Id

private int orderId; // Primary Key

private String dateCreated;

private String dateShipped;

private String customerName;

private String customerId;

private String status;

private String shippingId;

// Default Constructor

public Order() {}

// Parameterized Constructor

public Order(int orderId, String dateCreated, String dateShipped, String customerName, String customerId, String status, String shippingId) {

this.orderId = orderId;

this.dateCreated = dateCreated;

this.dateShipped = dateShipped;

this.customerName = customerName;

this.customerId = customerId;

this.status = status;

this.shippingId = shippingId;

}

// Getters and Setters

public int getOrderId() {

return orderId;

}

public void setOrderId(int orderId) {

this.orderId = orderId;

}

public String getDateCreated() {

return dateCreated;

}

public void setDateCreated(String dateCreated) {

this.dateCreated = dateCreated;

}

public String getDateShipped() {

return dateShipped;

}

public void setDateShipped(String dateShipped) {

this.dateShipped = dateShipped;

}

public String getCustomerName() {

return customerName;

}

public void setCustomerName(String customerName) {

this.customerName = customerName;

}

public String getCustomerId() {

return customerId;

}

public void setCustomerId(String customerId) {

this.customerId = customerId;

}

public String getStatus() {

return status;

}

public void setStatus(String status) {

this.status = status;

}

public String getShippingId() {

return shippingId;

}

public void setShippingId(String shippingId) {

this.shippingId = shippingId;

}

// Business Method: Place Order

public void placeOrder() {

System.out.println("Order with ID " + orderId + " has been placed.");

}

@Override

public String toString() {

return "Order [orderId=" + orderId + ", dateCreated=" + dateCreated +

", dateShipped=" + dateShipped + ", customerName=" + customerName +

", customerId=" + customerId + ", status=" + status +

", shippingId=" + shippingId + "]";

}

}

import javax.persistence.Entity;

import javax.persistence.Id;

@Entity

public class ShippingInfo {

@Id

private int shippingId; // Primary Key

private String shippingType;

private int shippingCost;

private int shippingRegionId;

// Default Constructor

public ShippingInfo() {}

// Parameterized Constructor

public ShippingInfo(int shippingId, String shippingType, int shippingCost, int shippingRegionId) {

this.shippingId = shippingId;

this.shippingType = shippingType;

this.shippingCost = shippingCost;

this.shippingRegionId = shippingRegionId;

}

// Getters and Setters

public int getShippingId() {

return shippingId;

}

public void setShippingId(int shippingId) {

this.shippingId = shippingId;

}

public String getShippingType() {

return shippingType;

}

public void setShippingType(String shippingType) {

this.shippingType = shippingType;

}

public int getShippingCost() {

return shippingCost;

}

public void setShippingCost(int shippingCost) {

this.shippingCost = shippingCost;

}

public int getShippingRegionId() {

return shippingRegionId;

}

public void setShippingRegionId(int shippingRegionId) {

this.shippingRegionId = shippingRegionId;

}

// Business Method: Update Shipping Information

public void updateShippingInfo(String newType, int newCost, int newRegionId) {

this.shippingType = newType;

this.shippingCost = newCost;

this.shippingRegionId = newRegionId;

System.out.println("Shipping information updated successfully.");

}

@Override

public String toString() {

return "ShippingInfo [shippingId=" + shippingId + ", shippingType=" + shippingType +

", shippingCost=" + shippingCost + ", shippingRegionId=" + shippingRegionId + "]";

}

}

import javax.persistence.Entity;

import javax.persistence.Id;

@Entity

public class ShoppingCart {

@Id

private int cartId; // Primary Key

private int productId;

private int quantity;

private int dateAdded;

// Default Constructor

public ShoppingCart() {}

// Parameterized Constructor

public ShoppingCart(int cartId, int productId, int quantity, int dateAdded) {

this.cartId = cartId;

this.productId = productId;

this.quantity = quantity;

this.dateAdded = dateAdded;

}

// Getters and Setters

public int getCartId() {

return cartId;

}

public void setCartId(int cartId) {

this.cartId = cartId;

}

public int getProductId() {

return productId;

}

public void setProductId(int productId) {

this.productId = productId;

}

public int getQuantity() {

return quantity;

}

public void setQuantity(int quantity) {

this.quantity = quantity;

}

public int getDateAdded() {

return dateAdded;

}

public void setDateAdded(int dateAdded) {

this.dateAdded = dateAdded;

}

// Business Method: Update Quantity

public void updateQuantity(int newQuantity) {

this.quantity = newQuantity;

System.out.println("Quantity updated successfully.");

}

@Override

public String toString() {

return "ShoppingCart [cartId=" + cartId + ", productId=" + productId +

", quantity=" + quantity + ", dateAdded=" + dateAdded + "]";

}

}

import javax.persistence.Entity;

import javax.persistence.Id;

@Entity

public class OrderDetails {

@Id

private int orderId; // Primary Key

private int productId; // ID of the product

private String productName; // Name of the product

private int quantity; // Quantity ordered

private float unitCost; // Cost per unit

private float subtotal; // Subtotal for the order

// Default Constructor

public OrderDetails() {}

// Parameterized Constructor

public OrderDetails(int orderId, int productId, String productName, int quantity, float unitCost) {

this.orderId = orderId;

this.productId = productId;

this.productName = productName;

this.quantity = quantity;

this.unitCost = unitCost;

this.subtotal = calculateSubtotal();

}

// Getters and Setters

public int getOrderId() {

return orderId;

}

public void setOrderId(int orderId) {

this.orderId = orderId;

}

public int getProductId() {

return productId;

}

public void setProductId(int productId) {

this.productId = productId;

}

public String getProductName() {

return productName;

}

public void setProductName(String productName) {

this.productName = productName;

}

public int getQuantity() {

return quantity;

}

public void setQuantity(int quantity) {

this.quantity = quantity;

this.subtotal = calculateSubtotal(); // Update subtotal when quantity changes

}

public float getUnitCost() {

return unitCost;

}

public void setUnitCost(float unitCost) {

this.unitCost = unitCost;

this.subtotal = calculateSubtotal(); // Update subtotal when unit cost changes

}

public float getSubtotal() {

return subtotal;

}

// Method to calculate subtotal

private float calculateSubtotal() {

return this.quantity \* this.unitCost;

}

@Override

public String toString() {

return "OrderDetails [orderId=" + orderId + ", productId=" + productId +

", productName=" + productName + ", quantity=" + quantity +

", unitCost=" + unitCost + ", subtotal=" + subtotal + "]";

}

}

import javax.persistence.Entity;

import javax.persistence.Id;

@Entity

public class Administrator {

@Id

private String adminName; // Primary Key (unique administrator name)

private String email; // Administrator's email address

// Default Constructor

public Administrator() {}

// Parameterized Constructor

public Administrator(String adminName, String email) {

this.adminName = adminName;

this.email = email;

}

// Getters and Setters

public String getAdminName() {

return adminName;

}

public void setAdminName(String adminName) {

this.adminName = adminName;

}

public String getEmail() {

return email;

}

public void setEmail(String email) {

this.email = email;

}

// Method for administrative task - Updating Catalog

public void updateCatalog() {

System.out.println("Catalog has been updated by: " + adminName);

}

@Override

public String toString() {

return "Administrator [adminName=" + adminName + ", email=" + email + "]";

}

}